addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from the central scope thereof. Therefore, it is intended that this invention not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out the invention, but that the invention will include all embodiments falling within the scope of the appended claims.

What is claimed is:

1. An impedance blocking filter circuit used in telecommunication systems for interconnecting between incoming telephone lines and customer's terminal equipment so as to unconditionally block impedances from above 20 KHz due to the customer's terminal equipment from an ADSL network unit and/or home networking interface unit, said filter circuit comprising:

first and second third inductors connected in series between a first input terminal and a first common point;

said first inductor having its one end connected to said first input terminal and its other end connected to one end of said second inductor, said second inductor having its other end connected to said first common point;

third and fourth inductors connected in series between a second input terminal and a second common point;

said third inductor having its one end connected to said second input terminal and its other end connected to one end of said fourth inductor, said fourth inductor having its other end connected to said second common point;

first switching means having a first end and a second end and being responsive to DC loop current for electrically connecting said first end to said second end;

a first capacitor having a first end connected to said first common point and a second end connected to said first end of said switching means, said second end of said switching means being connected to said second common point;

a fifth inductor having a first end connected to said first common point and a second end connected to a first output terminal, and a sixth inductor having a first end connected to said second common point and a second end connected to a second output terminal;

second switching means having a first end and a second end and being responsive to said DC loop current for electrically connecting said first end to said second end;

a second capacitor having a first end connected to said sixth inductor at a first node and a second end connected to said first end of said second switching means, said second end of said second switching means being connected to said fifth inductor at a second node;

switch suppression circuit means interconnected between said first and second common points for preventing transients caused by actuation of said first and second switching means from being fed back into the incoming telephone lines; and

correction circuit means interconnected between said first and second nodes and said output terminals for significantly reducing return loss caused by inductive impedance when the customer's terminal equipment goes off-hook.

2. An impedance blocking filter circuit as claimed in claim 1, wherein said correction circuit means is comprised of a first tank circuit and a second tank circuit, said first tank circuit being formed of a first winding inductor, a first tank capacitor, and a first tank resistor all connected in parallel and between said first node and said first output terminal, second tank circuit being formed of a second winding inductor, a second tank capacitor, and a second tank resistor all connected in parallel and between said second node and said second output terminal.

3. An impedance blocking filter circuit as claimed in claim 2, further comprising a seventh inductor having a first end connected to said fifth inductor at said first node and a second end connected to said first tank circuit, and an eighth inductor having a first end connected to said sixth inductor at said second node and a second end connected to said second tank circuit.

4. An impedance blocking filter circuit as claimed in claim 3, wherein said first switching means includes a first reed switch and said second switching means includes a second reed switch.

5. An impedance blocking filter circuit as claimed in claim 4, wherein said first winding of said first tank circuit, said second winding of said second tank circuit, said first reed switch, and said second reed switch are arranged in a dual winding inductor structure.

6. An impedance blocking filter circuit as claimed in claim 5, wherein said first winding of said first tank circuit and said first reed switch is arranged in a first current sensor unit, said second winding of said second tank circuit and said second reed switch is arranged in a second current sensor unit.

7. An impedance blocking filter circuit as claimed in claim 1, further comprising a first metal-oxide or silicon varistor connected in series with said first capacitor and in parallel with said first switching means, and a second metal-oxide or silicon varistor connected in series with said second capacitor and in parallel with said second switching means.

8. An impedance blocking filter circuit as claimed in claim 7, wherein said switch suppression circuit means includes a ninth inductor, a tenth inductor, and a third capacitor.

9. An impedance blocking filter circuit as claimed in claim 8, wherein said ninth inductor has a first end connected to said second inductor and a second end connected to said fifth inductor, said tenth inductor has a first end connected to said fourth inductor and a second end connected to said sixth inductor, and said third capacitor has a first end connected to the junction of said second and fifth inductors and a second end connected to the junction of said third and sixth inductors.

10. An impedance blocking filter circuit used in telecommunication systems for interconnecting between incoming telephone lines and customer's terminal equipment so as to unconditionally block impedances from above 20 KHz due to the customer's terminal equipment from an ADSL network unit and/or home networking interface unit, said filter circuit comprising:

first and second third inductors connected in series between a first input terminal and a first common point;

said first inductor having its one end connected to said first input terminal and its other end connected to one end of said second inductor, said second inductor having its other end connected to said first common point;

third and fourth inductors connected in series between a second input terminal and a second common point;

said third inductor having its one end connected to said second input terminal and its other end connected to one end of said fourth inductor, said fourth inductor having its other end connected to said second common point;

transistor switching means interconnected between said first and second common points and being responsive

to DC loop current for eliminating shunt capacitance caused by other filter circuits connected to on-hook telephone sets;

a fifth inductor having a first end connected to said first common point and a second end connected to a first output terminal, and a sixth inductor having a first end connected to said second common point and a second end connected to a second output terminal; and

correction circuit means interconnected between said fifth and sixth inductors and said output terminals for significantly reducing return loss caused by inductive impedance when the customer's terminal equipment goes off-hook.

11. An impedance blocking filter circuit as claimed in claim **10**, wherein said transistor switching means is comprised of a pair of transistors, a resistor, first and second capacitors, and first and second varistors.

12. An impedance blocking filter circuit as claimed in claim **10**, wherein said correction circuit means is comprised of a first tank circuit and a second tank circuit, said first tank circuit being formed of a first winding inductor, a first tank capacitor, and a first tank resistor all connected in parallel and between said fifth inductor and said first output terminal, second tank circuit being formed of a second winding inductor, a second tank capacitor, and a second tank resistor all connected in parallel and between said sixth inductor and said second output terminal.

13. An impedance blocking filter circuit used in telecommunication systems for interconnecting between incoming telephone lines and customer's terminal equipment so as to unconditionally block impedances from above 20 KHz due to the customer's terminal equipment from an ADSL network unit and/or home networking interface unit, said filter circuit comprising:

first and second inductors connected in series between a first input terminal and a first common point;

said first inductor having its one end connected to said first input terminal and its other end connected to one end of said second inductor, said second inductor having its other end connected to said first common point;

third and fourth inductors connected in series between a second input terminal and a second common point;

said third inductor having its one end connected to said second input terminal and its other end connected to one end of said fourth inductor, said fourth inductor having its other end connected to said second common point;

first switching means having a first end and a second end and being responsive to DC loop current for electrically connecting said first end to said second end;

a first capacitor having a first end connected to said first common point and a second end connected to said first end of said switching means, said second end of said switching means being connected to said second common point; and

switch suppression circuit means interconnected between said first and second common points for preventing transients caused by actuation of said first switching means from being fed back into the incoming telephone lines.

14. An impedance blocking filter circuit as claimed in claim **13**, further comprising a fifth inductor having a first end connected to said first common point and a second end connected to a first output terminal, and an sixth inductor having a first end connected to said second common point and a second end connected to a second output terminal.

15. An impedance blocking filter circuit as claimed in claim **14**, wherein said first switching means includes a reed switch.

16. An impedance blocking filter circuit as claimed in claim **15**, wherein said first through fourth inductors and said reed switch are arranged in a dual winding ferrite core inductor device.

17. An impedance blocking filter circuit as claimed in claim **13**, further comprising a metal-oxide varistor connected in series with said first capacitor and in parallel with said first switching means.

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